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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,809	12/14/2000	Kieran Gerard Larkin	1691932	5441

5514 7590 09/10/2004

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EXAMINER

HO, TUAN V

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/735,809

Applicant(s)

LARKIN ET AL.

Examiner

Tuan V Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 20-41 and 48 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19 and 42-47 is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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1. Applicant's election with traverse of the invention of Group I, claims 1-19 and 42-47 is acknowledged. The traversal is on the ground(s) that "a thorough search of the art relevant to Group I will require substantial consideration of the art relevant to Group II, and all the identified species. Separate search and examination by separate Examiner may lead to duplicate work and inconsistent result", page 2 of the remarks. This is not found persuasive because the search for Group I and Group II is respectively in class 348/208.12 and 348/155, which is different. Noted that the subject matter of Group I and II is recognized divergent subject matter and the search for Group I is not require for Group II.

The requirement is still deemed proper and is therefore made FINAL.

2. This application is in condition for allowance except for the presence of claim 20-41 and 48 to an invention non-elected with traverse in the reply filed on 6/21/04. Applicant is given ONE MONTH or THIRTY DAYS from the date of this letter, whichever is longer, to cancel the noted claims or take other appropriate action (37 CFR 1.144). Failure to take action during this period will be treated as authorization to cancel the noted claims by Examiner's Amendment and pass the case to issue.

Extensions of time under 37 CFR 1.136(a) will not be permitted since this application will be passed to issue.

The prosecution of this case is closed except for consideration of the above matter.

3. Claims 1-19 and 42-47 are allowed.

The prior art of record fails to suggest or disclose:

With regard to claim 1, a method of estimating motion of a moving object, said method comprising the steps of capturing at least first and second blurred images of said moving object, the blur in said images arising from at least motion blur of said object, wherein exposure durations of said first and second blurred images overlap at least partially; generating an error function, said error function being a function of said first blurred image and said second blurred image; minimizing said error function.

With regard to claim 8, a method of estimating motion of a moving object, said method comprising the steps of capturing at least first and second blurred images of said moving object, the blur in said images arising from at least motion blur of said object, wherein exposure durations of said first and second blurred images overlap at least partially; generating an error function, said error function comprising a cross-correlation term

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to being a cross-correlation between said first blurred image and said second blurred image; minimizing said generated error function.

With regard to claim 10, apparatus for estimating motion of a moving object, said apparatus comprising: one or more capture devices for capturing at least first and second blurred images of said moving object, the blur in said blurred images arising from at least motion blur of said 20 object, wherein exposure durations of said blurred images overlap at least partially; means for generating an error function, said error function being a function of said first blurred image and said second blurred image; means for minimizing said error function.

With regard to claim 17, apparatus for estimating motion of a moving object, said apparatus comprising: one or more capture devices for capturing at least first and second blurred images of said blurred images arising from at least motion blur of said object, wherein exposure durations of said blurred images overlap at least partially; means for generating an error function, said error function comprising a cross correlation term being a cross-correlation between said first blurred image and said second blurred image; means for minimizing said generated error function.

With regard to claim 42, a computer program product including a computer readable medium incorporating a computer program estimating motion of a moving object, said computer program product comprising: code for capturing at least first and second blurred images of said moving object, the blur in said images arising from at least motion blur of said object, wherein exposure duration of said first and second blurred image; overlap at least partially; code for generating an error function, said error function being a function of said first blurred image and said second blurred image; code for minimizing said error function.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kusaka et al discloses an image fluctuation correcting apparatus that a image fluctuation predicting circuit.

Sugahara et al discloses an image pickup apparatus that comprises a blur compensation circuit.

Sekine et al'916 discloses a movement detection apparatus that comprises a circuit detecting the difference between first and second image signals.

Sekine et al'354 discloses an image shake correcting system that comprises a motion detecting circuit.

Naneda discloses an apparatus for correcting blurring of an image, where the apparatus includes motion detection circuit.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TUAN HO whose telephone number is (703) 305-4943. The examiner can normally be reached on Mon-Fri from 7AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen, can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



TUAN HO

Primary Examiner

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